Upland County Park 7

Chapter 7: Upland County Park

INTRODUCTION

BRIEF HISTORY

The earliest relevant history of the Upland County Park area was the construction of Caleb Pusey's house in 1638 and various mills and a race hydraulically powered by Chester Creek. The Mills created by Pusey were successful through the 1700's even after Pusey sold them in 1709.

Further development of the mills in the 1800's, the Pusey site, on land in Upland Park and in the Upland area was directly attributed to the Crozer Family. John Price Crozer bought the mills and the Pusey tract in 1845. The Crozers' further developed the Upland Park area to include small frame houses and a school house. John Crozer eventually turned the mills into a very profitable cotton factory with steam power. From his prospering enterprises and the ever-growing workforce associated, Crozer was able to develop the area into a village of houses and mansions, most of which have not survived to this today.

One of the mansions, the George K. Crozer mansion (affectionately known as the "Netherleigh" mansion), was built in 1869 on nearly 38 acres. The Mansion included a carriage house, a springhouse, a coachman's house, outbuildings and a barn. Today only the carriage house and the remnants of the driveway access remain as a historical relic from this time.

Figure 7-1: Rendering of the Netherleigh Mansion

When George K. Crozer died, the Netherleigh mansion what purchased by Dr. Israel Bram as a private sanatorium until Bram sold the 38 acre property to the Salvation Army in 1945. The Salvation Army purchased 21 additional acres to the south. Naming it Camp Upland, they subsequently constructed numerous buildings and facilities over the next 25 year to meet the needs of their summer programs.

In 1968, Delaware County purchased the entire Camp Upland property from the Salvation Army. From this time until 1987, the County's primary use of the Park was still for a summer camp. In 1987, the County closed the camp for good.

From the closing of the camp until now, only two structures associated with the camp remain; a maintenance building / pavilion and the Redwood Playhouse. The Netherleigh mansion was destroyed by a fire in 1990 and deemed not salvageable in any capacity.

The County has continued to improve and create new facilities and playing fields since the camp closure.

CONTEXT WITHIN THE DELAWARE COUNTY PARKS SYSTEM

With approximately sixty scenic acres, Upland County Park offers a mixture of active and passive recreation. Facilities within the park include a tot-lot/playground, ball-fields, open playing fields for

football or soccer, open lawn for passive activities (Frisbee, sunbathing, etc.) and the Redwood Playhouse that hosts various shows, entertainers, other events and acts as a community senior center. Upland County Park also possesses some patches of mature mixed deciduous woodlands for pleasurable walking, bird watching, and picnicking.

In the context of the overall Delaware County Park System, Upland County Park is the fourth largest County Park and presents the most potential for redevelopment and re-purposing within the Park system. Given the nature of the park and the way people access and use the park, it currently lacks the necessary facilities (adequate parking, well developed pedestrian circulation, etc.) to maximize use and meet its potential/demand as a key asset to the County.

CURRENT SERVICE AREA

Upland County Park is currently a Community and Regional Park. Most daily users access the park on foot from bordering neighborhoods. Others drive from adjacent municipalities for Redwood Playhouse events and to utilize the playing fields.

The current service area of Upland County Park supports the municipalities of Upland Borough, Upper and Lower Chichester Townships, Marcus Hook Borough, Trainer Borough, City of Chester, Eddystone Borough, Ridley Township, Parkside Borough, Chester Township, Aston Township, Middletown Township, Rose Valley Borough, and Nether Providence Township.

Upland County Park's current service area also includes many other similar open space resources and user constituencies that benefit the park and will ultimately make Upland County Park a County and regional focal point. These resources include: The Saul Wildlife Sanctuary, Taylor Arboretum, the Caleb Pusey House and Historic Site, Neumann University, Widener University, Indian Orchard Park, Chester Park, Washington Park, Deshong Park, Crozier Park, Veteran's Memorial Park, Barry Bridge Park, Worrilow Park, and the East Coast Greenway.

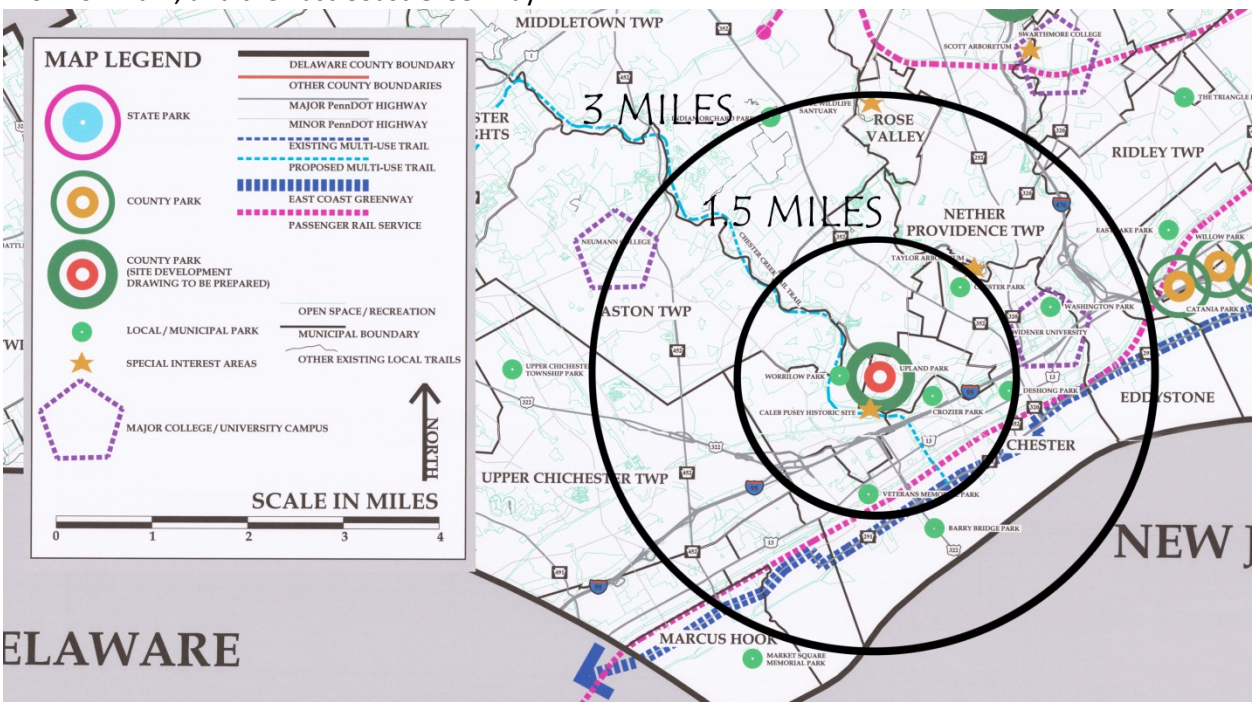


Figure 7-2: Upland County Park Service Area

LEGEND

- RESIDENTIAL LAND USE
- OPEN SPACE / INSTITUTIONAL LAND USE
- COMMERCIAL LAND USE
- PARCEL LINE (COUNTY GIS)
- PARK BOUNDARY
- 10 FT. LIDAR CONTOURS
- EXISTING WATER COURSE
- EXISTING WOODLINE
- EXISTING TREE
- EXISTING PARK ACCESS POINT

CHESTER - UPLAND SCHOOL DISTRICT

4TH. ST.

6TH. ST.

3RD. ST.

CLEARWATER LN.

WOODED AREA

OPEN LAWN

GROVE

WOODED AREA

CARRIAGE HOUSE

60.06 ACRES

PARKING

OPEN LAWN

TOT LOT / PLAYGROUND

GROVE

PLAYING FIELD

OPEN LAWN

PLAYING FIELDS

PAVILION

PLAYING FIELDS

OPEN LAWN

PARKING

WOODED AREA

UPLAND BOROUGH

CHESTER TWP.

BROOKHAVEN BOROUGH

CHESTER TWP.

POWELL RD.

REDWOOD PLAYHOUSE

RAINER RD.

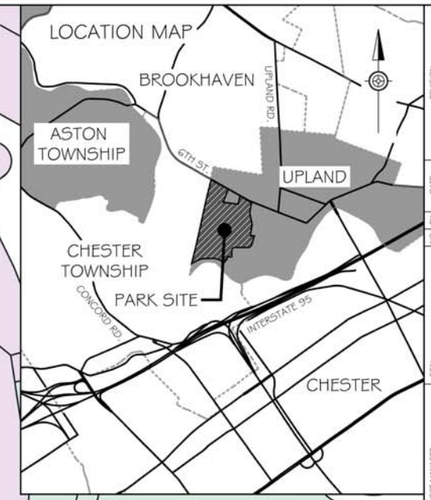
ELSON RD.

CALEB PUSEY HOUSE

PROPOSED CHESTER CREEK RAIL TRAIL

CHESTER CREEK

LOCATION MAP



REVISION | DATE | BY | SEAL

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SCALE IN FEET: 0, 100, 200, 300

PROJECT TITLE: SITE DEVELOPMENT DRAWINGS
UPLAND PARK
UPLAND BOROUGH | DELAWARE COUNTY, PA

SHEET TITLE: EXISTING CONDITIONS DRAWING

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EXISTING CONDITIONS AND INVENTORY

SURROUNDING LAND USE

Upland County Park is set in Upland Borough and in a high-density urbanized area of Delaware County near the City of Chester and the I-95 corridor. The Park is surrounded mostly by high-density residential neighborhoods, some commercial/industrial use, two schools in the Chester-Upland School District, and the Chester Creek corridor. See the Existing Conditions Drawing on the previous page.

NATURAL RESOURCES

Vegetation

Two edges to Upland County Park are predominantly wooded: 1) The northeast corner of the park adjacent to 6th and 4th streets and 2) along the Chester Creek corridor. These areas are mostly mixed deciduous with a combination of Sycamore, Cherry, Beech, Oak, Hickory, Maple and Ash. Also, these same areas have an abundant understory of young trees, groundcover, shrubs and vines.

Evergreens in the park are found to be more prevalent in the entrance areas of 3rd and 6th streets. Species found were arborvitae, pines, yew, and eastern red cedar.

The remainder of Upland County Park is sparsely vegetated with smaller scale flowering trees such as Dogwoods and larger stand-alone specimen trees similar to what was found and stated previously in the larger wooded areas of the park.

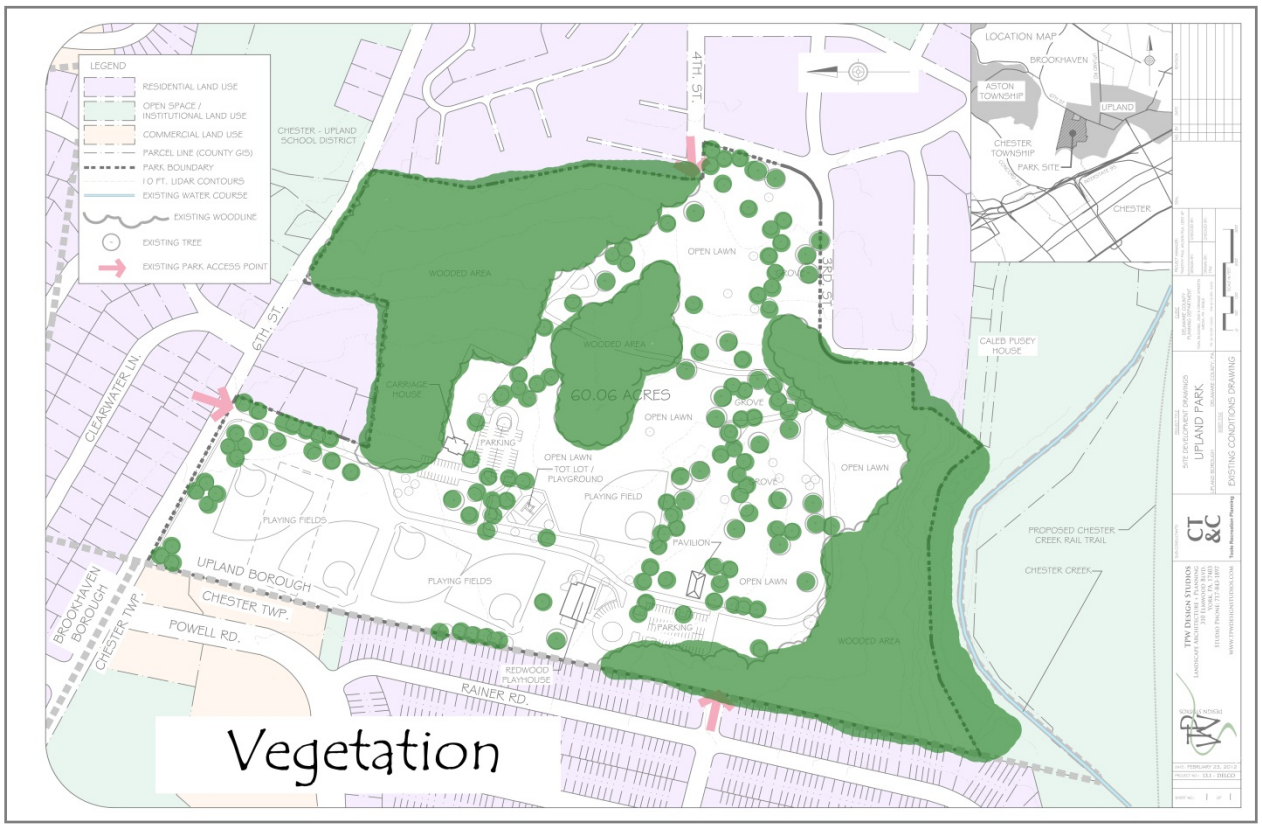

Figure 7-3: Existing vegetation at Upland County Park

Wildlife and Pennsylvania Natural Diversity Inventory

Wildlife

The main wildlife corridor is the Chester Creek corridor, which runs past Upland County Park on the southern end of the park. This creek "greenway" corridor contains fauna such as deer that are able to access the park woodlands and open space. Also, various birds were spotted nesting and using the tree canopy of Upland Park at layover in flight. Some of these birds included, red-tailed hawks, robins, blue jays, cardinals, red-winged black birds, and various finches.

The Chester Creek corridor and Upland County Park are wonderful resources of refuge for wildlife in a densely developed area of Delaware County.

Although there was evidence of burrowing rodents present in the park, none were seen.

Preliminary Environmental Review

The Pennsylvania Natural Diversity Inventory (PNDI) records for Upland County Park indicate no known impacts to threatened and endangered species and/or special concern species and resources within the Park boundary. Therefore, no further coordination (at this time) is required with the jurisdictional agencies (See Appendix U-2 for details of the review and limits). The agencies typically needing coordination in regards to a PNDI are: PA Game Commission; PA Department of Conservation and Natural Resources; PA Fish and Boat Commission; and the U.S. Fish and Wildlife Service.

Soils and Topography

Soils

According to the United States Department of Agriculture (USDA) soils survey, the soils present within Upland County Park are as follows:

CdA2 – Chester silt loam, 0 to 3 percent slopes, moderately eroded
CdB2 – Chester silt loam, 3 to 8 percent slopes, moderately eroded
CdC2 – Chester silt loam, 8 to 15 percent slopes, moderately eroded
Ch – Chewacla silt loam (Hydric Soil)
Cn – Congaree silt loam (Hydric Soil)
GeC2 – Glenelg channery silt loam, 8 to 15 percent slopes, moderately eroded
GeD – Glenelg channery silt loam, 15 to 25 percent slopes
GeD2 – Glenelg channery silt loam, 3 to 8 percent slopes, moderately eroded
GnC2 – Glenville channery silt loam, 8 to 15 percent slopes, moderately eroded
Me – Made land, schist and gneiss material (Hydric Soil)

Hydric Soils are those soils that are sufficiently wet in the upper part to develop anaerobic conditions during the growing season. Hydric Soils are generally associated with wetland conditions but do not necessarily mean there are wetlands present within an area of Hydric Soil.

Based on our field investigation, the terrain and drainage patterns of Upland Park are not conducive to the presence of wetlands. There is also an absence of the necessary plant material to suggest wetlands are present. This conclusion has been supported by the national wetland inventory mapping from the U.S. Fish and Wildlife Service which indicates an absence of wetlands in Upland County Park.
The soils identified above are detailed further in Appendix U-1.

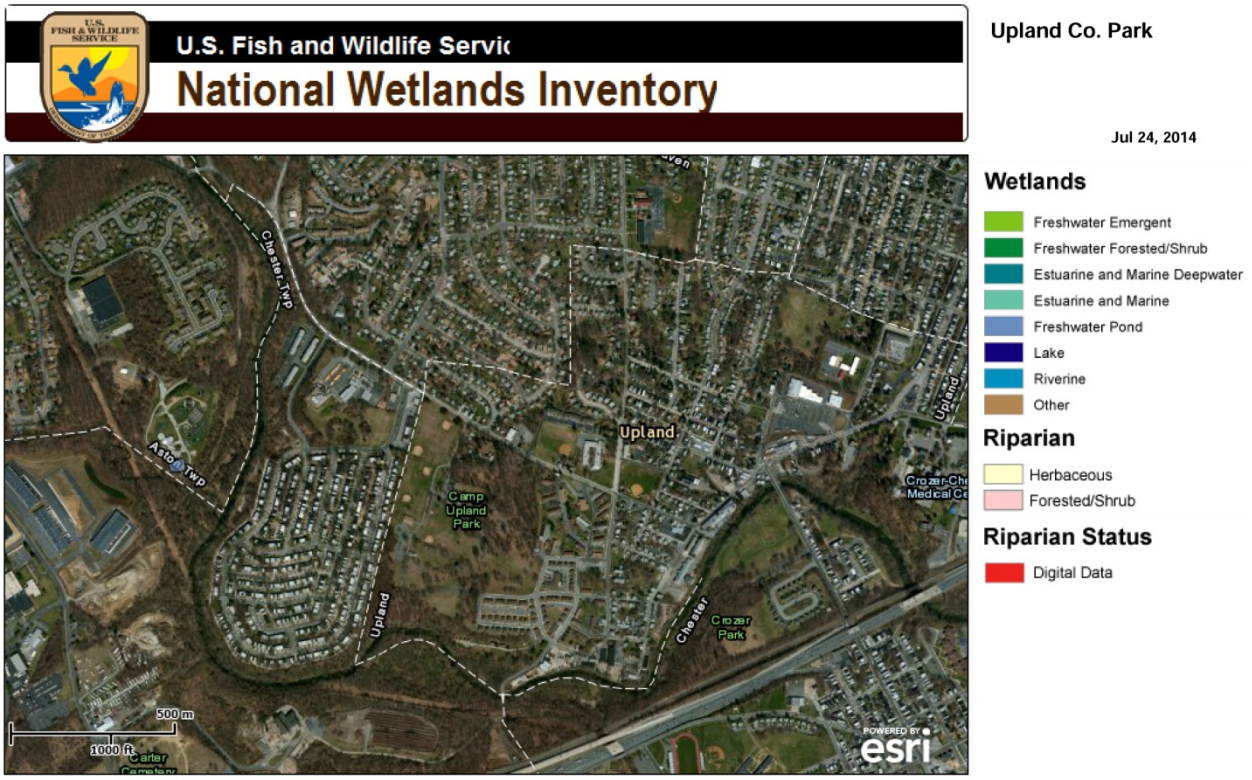

Figure 7-4: National Wetlands Inventory of Upland County Park

Topography

Upland County Park has a relatively flat topographical relief. The site has a high point near the playing fields at the northwest corner of the park and the grades gently fall away from that high point to the east, southeast and to the south toward Chester Creek. At the southern end of the park, the grade drops off significantly toward Chester Creek. This area is densely wooded and considered part of the buffer to Chester Creek.

Hydrology

The major hydrological feature of Upland County Park is just south of the park boundary in Chester Creek. Chester Creek is visible from the higher ground above the creek bed.

Most of the site soils are well draining soils and cause very few flooding and erosion issues. What stormwater is not infiltrated generally sheet flows across the park in a northeast to southwest direction.

There is little by the way of stormwater management on the Upland County Park site. There are some small channelized swales that flow during significant rain events and there are one or two culverts along 6th street and the park boundary near the former entrance to the Netherleigh Mansion.

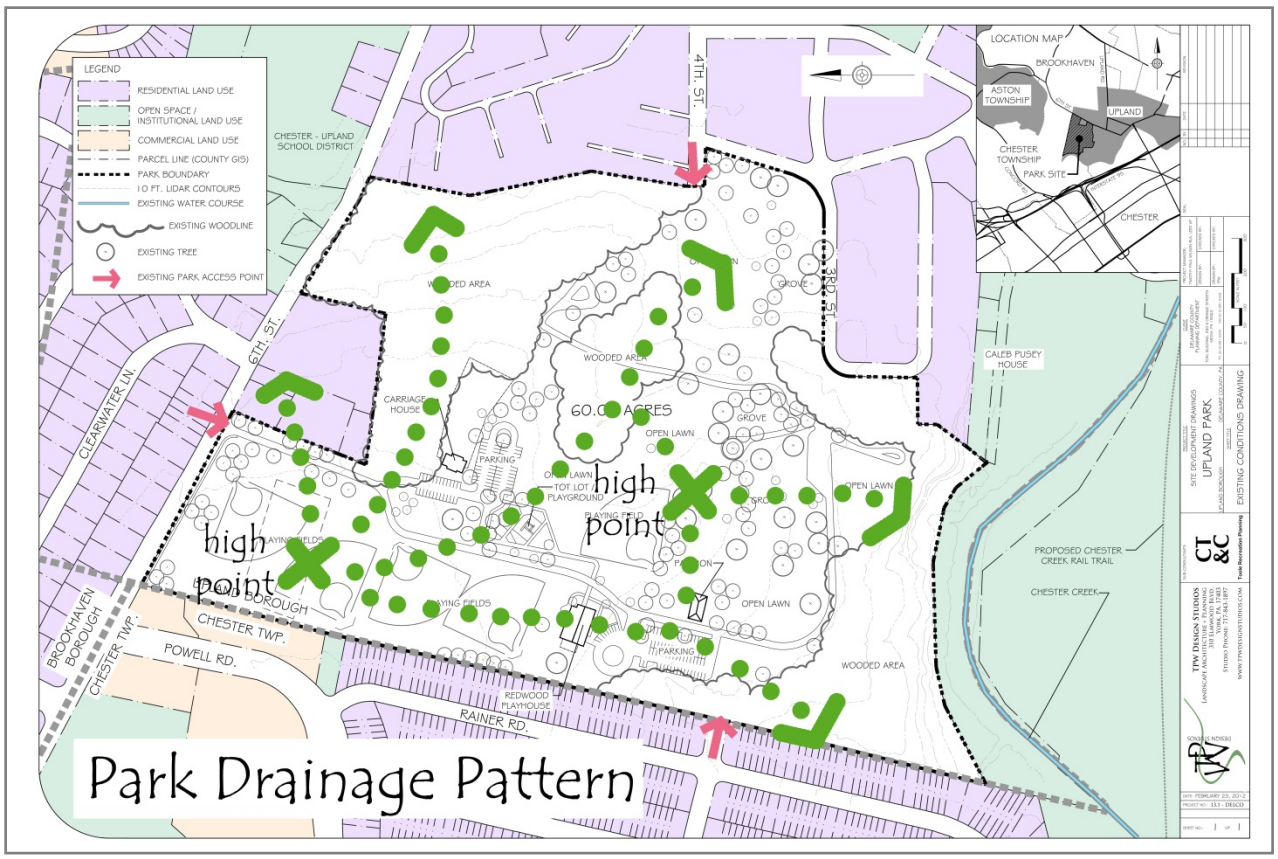

Figure 7-5: Existing park drainage at Upland County Park

Chester Creek and Chapter 93 Designation

As the largest watershed in Delaware County, Chester Creek drains about 45 square miles and is a tributary to the Delaware River. Chester Creek extends through Delaware County approximately 13.5 miles. Chester Creek originates in Chester County and flows in a southeasterly direction. The West Branch Chester Creek joins the main stem in Aston Township. The section of Chester Creek that flows to the south of Upland County Park is about 3 miles upstream of the Delaware River.

The Chapter 93 Protected Use Designation for the Chester Creek in the area of Upland County Park are:

WWF – Warm Water Fishes
MF – Migratory Fishes

There are no Exceptions to Specific Criteria and the waters of Chester Creek in this area are not “HQ” High Quality or “EV” Exceptional Values waters.

EXISTING PARK FACILITIES

Figure 7-6: Two-way access drive

Figure 7-7: Tot-Lot / Playground

Figure 7-8: Spray area

Figure 7-9: Three multi-use playing fields

Figure 7-10: Three paved parking areas

Figure 7-11: Access drive looking north

HISTORICAL AND CULTURAL RESOURCES

There are two main historical and cultural resources associated with Upland County Park, the Netherleigh Mansion site and the Caleb Pusey House. The Netherleigh Mansion site is located within Upland County Park and the Caleb Pusey House is located just southeast of the park.

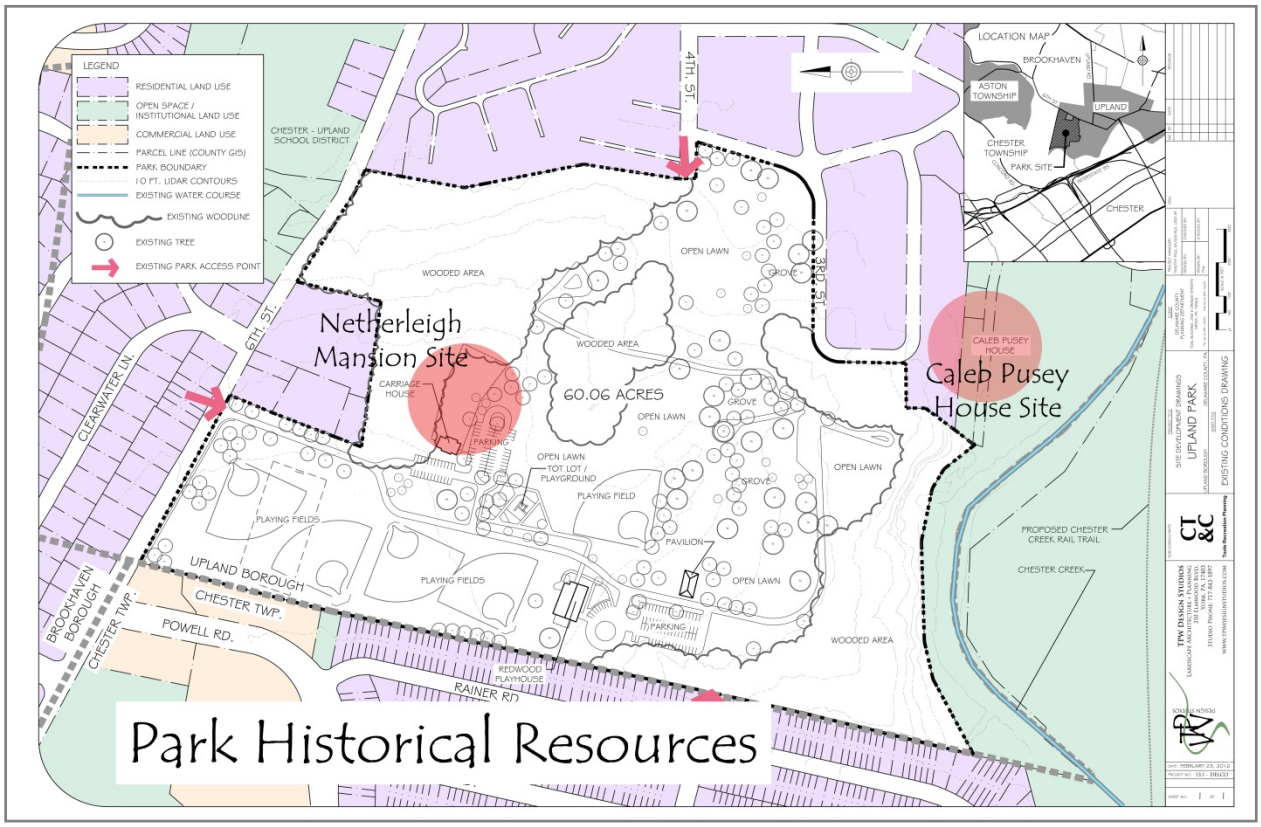

Figure 7-12: Existing historical resources at Upland County Park

The Netherleigh Mansion

The Netherleigh Mansion burned down in 1990 and was subsequently demolished. Only its access drive and Carriage House remains. The Carriage House is inventoried in the following "Structures" section of this narrative.

Figure 7-13: Netherleigh Mansion (1900)

Figure 7-14: Access drive to Netherleigh Mansion

The Caleb Pusey House and Historic Site

Built in 1683 and occupied by Caleb Pusey, this is the only building still standing which can claim documented association with the Proprietor, William Penn, and which he is known to have visited on several occasions. This unique English Vernacular house stands beside Race Street, the small road once paralleling the millrace that brought water from Chester Creek to power the mills built by Pusey.

The only other facet of the park that could be considered a historical and cultural resource is the lone remaining "Pavilion" Building 40 from the time the Salvation Army owned the property and the Redwood Playhouse. The two resources are identified and photographed in the following "Structures" section of this narrative.

Figure 7-15: Caleb Pusey House (date unknown)

Figure 7-16: Caleb Pusey House

STRUCTURES

The Netherleigh Carriage House

2 story, masonry and timber construction, circa 1870 – approximate footprint 2800 s.f. (note: there was a roofed area on the east façade that covers about 1600 s.f.). This carriage house, a few stone entry gate piers and landscaping on the property appear to be all that remains of the George K. Crozer (son of John Price Crozer) Estate. The Italianate mansion, formerly located nearby on the site, was built in 1869 and it is likely the carriage house was built around the same period. The "Crozer, George K., Mansion – also known as Netherleigh - 20 acres, 1 building" (ref. #73001625) was added to the National Register of Historic Places in 1973. The listing includes the entire 20 acre property of the estate. In June of 1990 the mansion was destroyed by fire and subsequently demolished, and with it, the National Register Status for the related buildings. The newly formed historic commission should help advise with regard to formal designation as national or local historic status. The Carriage house is boarded up and the interior

Figure 7-17: Netherleigh Carriage House

is currently secured and inaccessible without "tools." It is hard to determine if the Carriage House was also damaged in the fire. While the stone work needs repointing, it is in good condition. What is surprising is the condition of the exposed wood work on the exterior of the building. For a building that has been vacant and boarded up at least 20 years and more likely in well excess of 50, much of the wood work is in restorable condition. At least some of it may be replacements from some point after its original construction.

Figure 7-18: Redwood Playhouse

The portion of park property that the Carriage House resides is in a pending subdivision that would transfer ownership to Upland Borough.

The Redwood Playhouse

Wood timber/frame construction. Owned and operated by the County, the Playhouse is open to the community offering various free activities including being the community senior center. The building has been renovated, is in relatively good condition and reasonably well maintained.

Pavilion / Maintenance Building (Building 40)

Wood timber/frame construction, approximately 2,100 sf. Building 40 is an open plan, pavilion type structure that is a remnant of the former Salvation Army Camp on the site.

Figure 7-19: Pavilion / Maintenance Building

PARK ACCESS

Pedestrian

Being in such a dense neighborhood oriented area, many of Upland County Parks users arrive by foot or bicycle.

Besides homes that back directly up to the park, pedestrians access the park in three general locations: 1) at 6th street near the playing fields; 2) at 4th and 3rd streets at the open lawn; and 3) off of Rainer Road where Reynolds Road stubs into the park near the Redwood Playhouse.

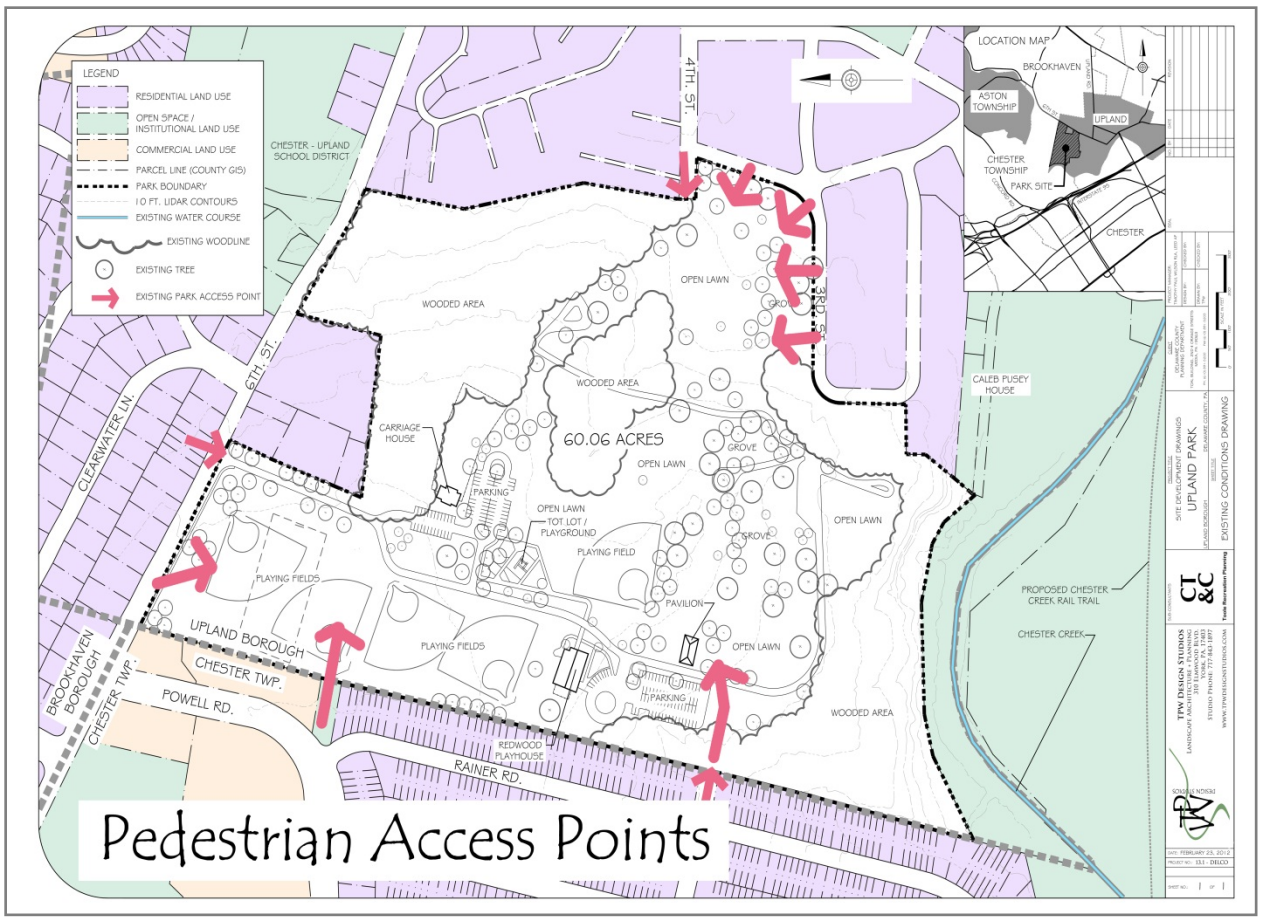

Figure 7-20: Existing pedestrian access points to Upland County Park

Trails and Greenways

Currently, the only existing trail or greenway even remotely close to Upland County Park is the East Coast Greenway that runs through Marcus Hook and the City of Chester as it approaches Philadelphia from the south.

The East Coast Greenway, conceived in 1991, is the nation's most ambitious long-distance urban trail. By connecting existing and planned shared-use trails, a continuous, traffic-free route is being formed, serving self-powered users of all abilities and ages. At 2,900 miles long, the Greenway links Calais, Maine, at the Canadian border, with Key West, Florida.

Public Transit

Delaware County, through SEPTA, has an extensive public transit system and Upland County Park is directly on Bus Route 117 – Feltonville to Penn State via Granite Run Mall. The bus service frequency during peak park use times of the day are every half hour Monday – Saturday, and every hour on Sundays.

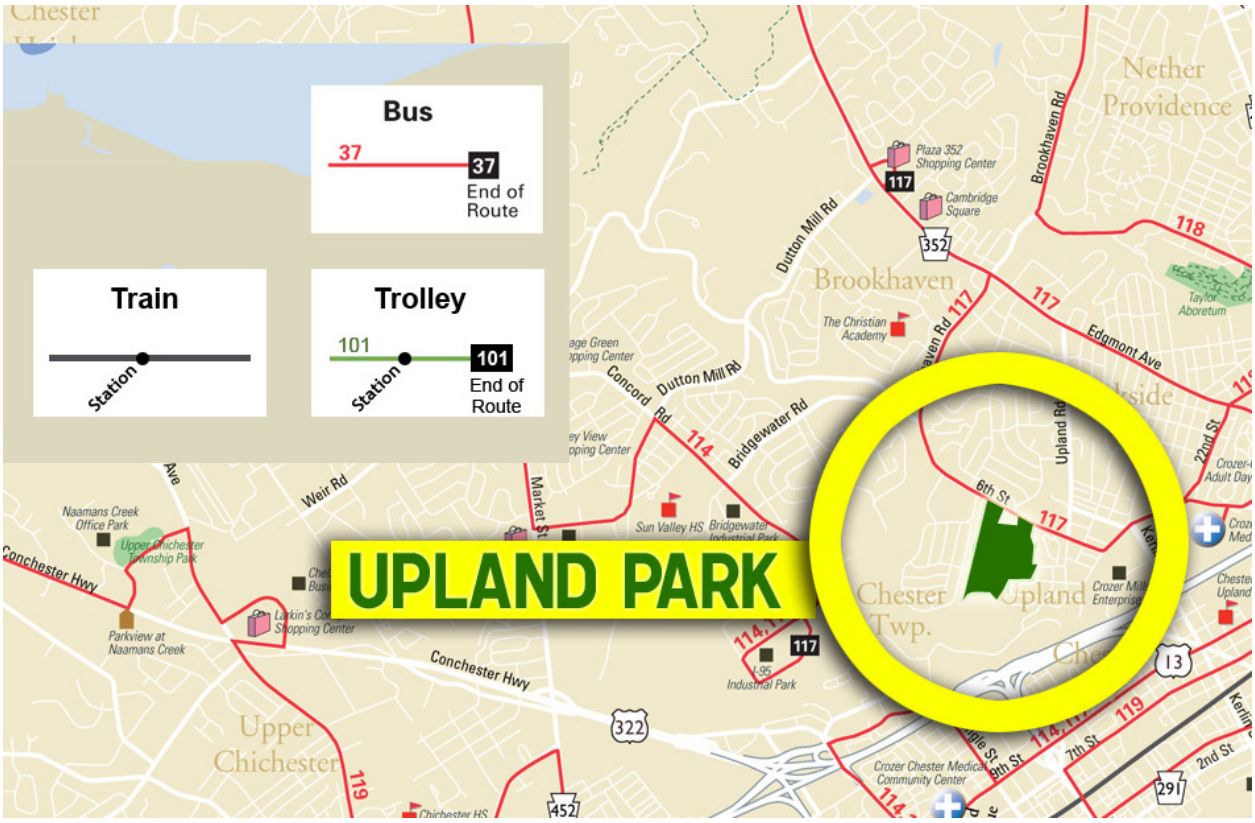

Figure 7-21: Transit connections to Upland County Park
(Base map source: DCPD 2013)

Vehicular

As it stands, there is only one vehicular access to Upland County Park. Ingress and egress to the park takes place off of 6th street. From this sole access, a very narrow access drive (17'-20' wide) meanders through the park. There are various awkward turn around spots throughout the park that were left over from the Salvation Army Camp days.

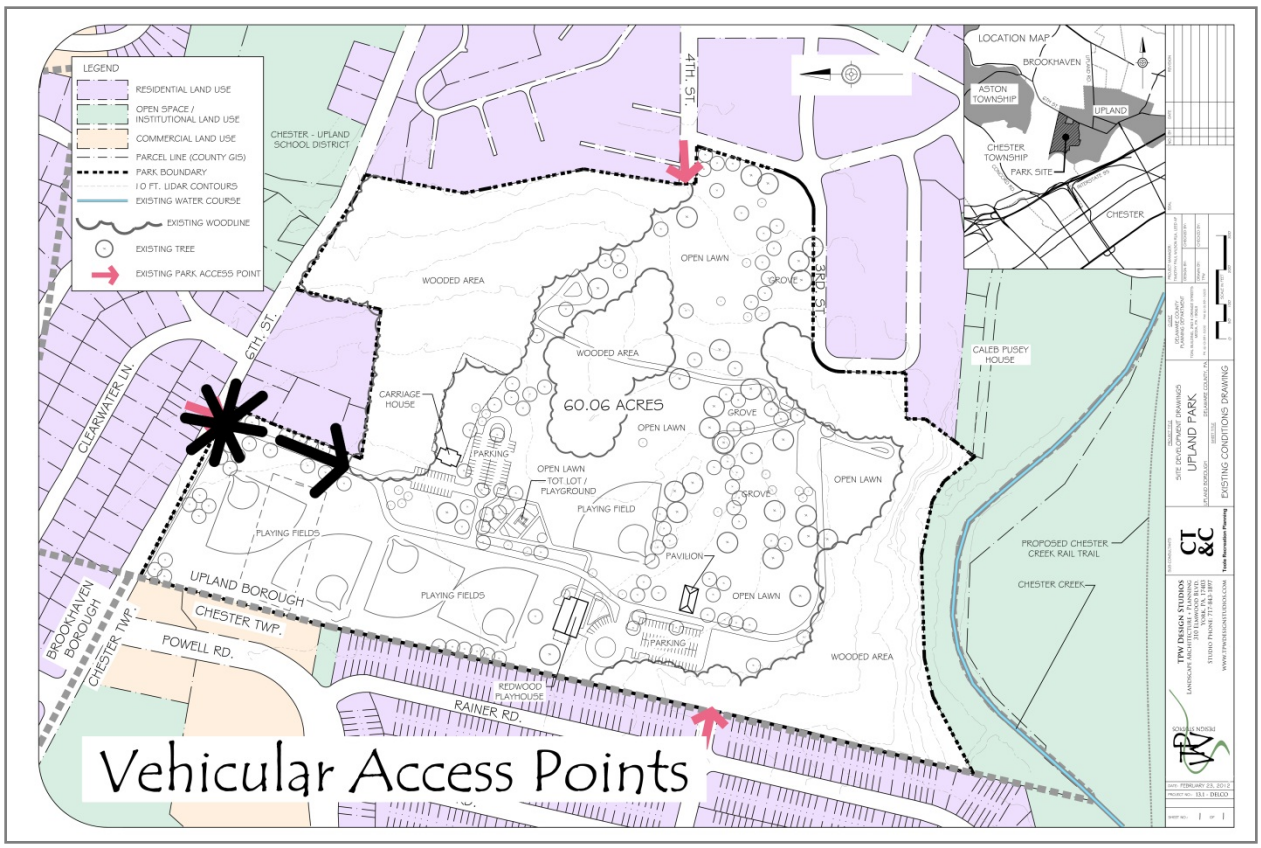

Figure 7-22: Existing vehicular access at Upland County Park

PARK NEEDS ANALYSIS

PARK USE, PROGRAMS, AND VISITATION IN 2015

As far as what is known, there is currently no documented visitation data for Upland County Park, so no visitation data was acquired or analyzed. Based on information from Delaware County and what has been visually attained from numerous park visits, the following are points and analysis regarding park use, programs and visitation in 2015.

1) A majority of everyday use comes from surrounding residential neighborhoods and adjacent schools. These park users are typically passing through the park, passive recreating (Frisbee, sunbathing, dog walking), or using the tot-lot / playground area.

   This use will inherently continue and drastically increase based on development and facility improvements in Upland County Park.

2) Mostly on week nights and weekends, loosely organized active recreation sports (softball, football, baseball, soccer) are played on the playing field areas.

   This use and constituency presents the opportunity to organize and increase with improving and defining the playing field areas and coordinating with local recreation organizations. There are parking capacity issues that need to be addressed with this use.

3) Programs:
   The Redwood Community Playhouse and Senior Center hosts hundreds of people each week to enjoy social dances, live bands, line dancing, country performers and other live performers and entertainment. Dances are held year round.

   The Redwood Community Playhouse and Senior Center is a wonderful asset to Upland County Park and the Delaware County Park System. The programming that takes place in the Redwood facility should be kept and expanded upon with the improvement to Upland County Park.

PARK NEEDS

The needs of Upland County Park have been compiled objectively and identified based on many variables including numerous consultant site visits and visual observations, public participation and input, Delaware County Planning and Parks and Recreation needs, and user demographics. Public survey information relating to Upland County Park can be found in Volume IV of the comprehensive Delaware County Open Space Recreation Plan.

The Upland County Park needs are as follows:

1) Access and Circulation Improvement
2) Pedestrian network and trails
3) Signage
4) Build upon existing resources
5) Connections to regional resources
6) Better defined open space and playing fields
7) Build upon existing park programming
8) Promotion of park facilities and programs
9) A more efficient and cost effective maintenance program
10) Additional parking
11) Delaware County presence within the park
12) Identity within the County park system
13) Enhance the user experience / make continuously interesting
14) “Curb appeal”
15) Gathering areas
16) Emphasize and promote the SEPTA’s public transit system as it relates to park use
17) Preserve and steward site woodlands
18) Additional active recreation facilities
19) Site stormwater management facilities
20) Develop relationships between Delaware County and local community oriented and business organizations in the area of Upland County Park

PARK DEVELOPMENT OPPORTUNITIES

Based on all information gathered and input attained, the following opportunities have been identified as Upland County Park existing features, facilities or connections that should be built upon within the Site Development Plan:

1) The Chester Creek Rail Trail development

2) The Netherleigh Carriage House (pending property transfer to Upland Borough)
3) Redwood Playhouse / Senior Center and programming
4) Build upon tot-lot / playground
5) Playing fields
6) The Netherleigh Mansion site and access from 6th Street
7) The Caleb Pusey House and site
8) Availability of additional park entrances
9) Tying into the surrounding pedestrian network (sidewalks, crossings, etc.)
10) Delaware County maintenance resources

MANAGEMENT, MAINTENANCE, AND OPERATIONS

Management

Currently, Upland County Park is managed remotely from the Delaware County Parks and Recreation Department in Rose Tree County Park. With the future long range development of the park and the anticipated increased use, there will be a strong need to base some County staff and maintenance on-site at Upland County Park. This method of park management would prove to be most efficient and effective once the park is improved to final build out.

The existing level of management of Upland County Park will not be sufficient as the park develops new facilities and programming.

Maintenance & Operations

Delaware County crews currently perform weekly maintenance duties that include trash pick-up, mowing, preventative maintenance, and incident maintenance.

As Upland County Park is developed and use far exceeds current standards, the need for additional equipment, maintenance staff and a detailed maintenance and operation task schedule and frequencies will be required to keep pace with user demand.

PARK SITE DEVELOPMENT PLAN AND RECOMMENDATIONS

THE SITE DEVELOPMENT PLAN "CONCEPT"

The concept of the Upland County Park Site Development Plan is to build the park into not only a cornerstone of the Delaware County Park system, but to create a self-sustaining regional recreation hub and destination within Delaware County and Southeastern Pennsylvania.

Given its current state, expansive open space, potential user demand, and lack of identity, Upland County Park presents the greatest opportunity for park development within the entire Delaware County Park system.

The concept places emphasis on pedestrian movement while connecting active and passive recreation areas with open areas and "green" space, while providing efficient vehicular movement for the motoring park user.

Figure 7-23: Upland County Park concept sketch

RECOMMENDATIONS

All recommendations suggested in this narrative are the result of an extensive analysis of existing park and Delaware County resources, public involvement (and surveys that can be found in Volume IV of the comprehensive Delaware County Open Space Recreation Plan), and potential park user demand.

Facilities & Park Site Development

The following Upland County Park Recommendations are in no particular order based on needs or priority. Phasing and implementation priority will be discussed further along in this park narrative.

Recommended Upland County Park improvements are as follows:

1) Improve Upland County Park (and overall County Park) signage to a standardized system that is identifiable and recognizable as such. Including interpretive signage.
2) Implementation of a new community garden plot area.

ADDITIONAL PLAN INFORMATION

PARK ACREAGE - 60.10 ACRES
IN UPLAND BOROUGH

PARK BOUNDARY

EXISTING 10 FOOT CONTOUR

100 YEAR FLOODPLAIN

MUNICIPAL BOUNDARY

APPROXIMATE BOUNDARY POTENTIAL LEASE OR SALE TO UPLAND BOROUGH

VEGETATION

LAWN

BIO-RETENTION / RAIN GARDEN

NATIVE MEADOW

FOREST / WOODED AREA

FEATURES & AMENITIES

POTENTIAL TRAIL / PED. CONNECTION

BENCHES

INTERPRETIVE SIGNAGE

PARK KIOSK

SMALL PARK KIOSK

PARKING

NEW PEDESTRIAN CROSSING

ONE WAY TRAFFIC

TWO WAY TRAFFIC

NOTE: ITALIC LABELS REPRESENT EXISTING SITE INFORMATION

SCALE IN FEET
0' 40' 80' 160' 240'

SCHOOL CAMPUS
VISTA LANE
UPLAND BOROUGH
6TH STREET
4TH STREET
ROOP STREET
3TH STREET
FRONT STREET
RACE ST.
CALEB PUSEY HOUSE
COUNTY PARK SIGN
10' MULTI-USE PATH
WOODED AREA
EARTHEN PATH
START ONE-WAY TRAFFIC
GREAT LAWN
PICNIC GROVE
OPEN LAWN
PAVILION
FOOTBALL FIELD WITH RUGBY CONVERSION CAPABILITIES
RECYCLING & SITE COMPOST AREA
MAINTENANCE BUILDING
BASEBALL FIELD
SOFTBALL / LITTLE LEAGUE FIELDS
POTENTIAL PEDESTRIAN BRIDGE LOCATION
CHESTER CREEK RAIL TRAIL
POTENTIAL CONNECTION TO THE CHESTER CREEK RAIL TRAIL
CHESTER TOWNSHIP
CHESTER CREEK
POWELL ROAD
RAINER ROAD
WORRILOW ROAD

UPLAND COUNTY PARK

SITE DEVELOPMENT PLAN

JANUARY 2015

1. EXISTING TOT-LOT WITH EXPANSION THAT INCLUDES: FITNESS STATIONS; SPLASH PARK; CONCESSION STAND & RESTROOMS
2. MULTI-PURPOSE PLAYING FIELD
3. NETHERLEIGH MEMORIAL GARDEN & RESTORED CARRIAGE HOUSE
4. NETHERLEIGH PEDESTRIAN ALLEE FROM 6TH STREET TO MEMORIAL GARDEN AND CARRIAGE HOUSE
5. LARGE PARK KIOSK, THREE BASKETBALL COURTS WITH PLAZA AND STAIRCASE SEATING WALLS ON THREE SIDES OF THE COURTS
6. COMMUNITY GARDEN PLOTS
7. COMMUNITY / RECREATION CENTER TO INCLUDE PROGRAMMING ELEMENTS FROM THE FORMER REDWOOD PLAYHOUSE AND INDOOR RECREATION AND SPORTS FACILITIES: GYM, RACQUETBALL, AND TURF FIELD
8. TENNIS COURTS WITH PARKING INCLUDING ADA ACCESSIBLE SPACES (AUXILIARY PARKING FOR THE RECREATION CENTER)

TPW Design Studios
LANDSCAPE ARCHITECTURE & PLANNING
310 ELMWOOD BOULEVARD YORK, PA.
STUDIO PHONE: 717.843.1897

TOOLE RECREATION PLANNING

3) Widen and develop existing access drive network: a) Create “one-way” access drive loop with several “two-way” parking areas, and access points. b) Create additional park access points at Worrilow Road (from the neighborhood to the east of the park) and 4th street to the west of the park.
4) Improve and develop the park pedestrian circulation network including multi-use paths, sidewalk improvements and crosswalk improvements to better access adjacent neighborhoods and Chester - Upland schools.
5) Create pedestrian / park user link to Race Street, the Caleb Pusey House site and the Chester Creek Rail Trail. A connection to the Chester Creek Rail Trail would require the implementation of a pedestrian bridge over Chester Creek.
6) Re-purpose the Netherleigh Carriage House – Even though Upland Borough is in the process of a property transfer with the County that would give them ownership of the Carriage House, the following recommendation is being made with its current relation to the County park. It should be restored and certainly has great potential for reuse for county park or municipal related functions or even as a leasable building/space to generate revenue for the county. It’s location off the main drive from 6th Street, with immediately adjacent parking would make it ideal for a number of uses from County administrative offices, to private business office uses, or even a local interest group that may need space for offices, display, meeting space and outreach functions. It appears the building could be developed into about 5000 s.f. of interior space using both floors. The restoration would require the stone work be addressed, roof repairs, window and door restoration/replacement, restoration of exterior trims, potential reconstruction of the roof that was on the east façade, depending on the proposed uses new mechanical and electrical systems and services, new vertical circulation elements, and interior construction based on the proposed use.
7) Coordinate pathways and connections between the County park and the subdivided Upland Borough municipal park with memorial gardens.
8) Tot-Lot expansion that will include a spray / splash-park, fitness stations, a concession stand and restrooms.
9) Installation of park / County park system kiosks (Signage), benches and seating areas (including picnic groves).
10) A large pavilion area.
11) Define open spaces and lawn areas with native plant material and meadows. This will provide the opportunity to naturalize previously regularly maintained areas and reduce maintenance expenditures.
12) Redesign of the existing playing fields / baseball fields. The northern field area of Upland County Park would contain one larger baseball field and two smaller softball / little league baseball fields.
13) Additional active recreation facilities including tennis courts, basketball courts and a football field with rugby conversion capabilities.
14) Advocate for park “friends” groups and foster partnerships with local business and recreation organizations that could be park stewards and potentially work with Delaware County on park upkeep, maintenance and/or security.
15) Although the Redwood Playhouse and Senior Center building is sufficient for its current use and programming, it is recommended that a new community center / senior center be implemented with the future development of Upland County Park.
    The new center will incorporate all existing programming and feature an indoor recreation / sports facilities that should include: gym (weights and exercise equipment); racquetball and a turf field.

The new community center facility would be proposed in the current site of the Redwood Playhouse and Senior Center. The site would be reworked to expand parking and improve pedestrian movement to other facilities within the park.

The new community center facility could also support Delaware County Parks and Recreation offices and on-site staff.

16) A redesign / improvement of existing parking facilities and the addition of five new parking areas for the expanded use and programming of Upland County Park.
17) An on-site compost and recycling area is recommended for Upland County Park

The Site Development Plan

The site development plan is an illustrative rendering of Upland County Park that reflects the recommended improvements at full park "build out." The plan incorporates all phases of development including "long-range" concepts.

Many factors play a role in the development and timeframe of park improvements: available funds and funding sources, county needs, park use demands and the like. It is recognized that priorities change over time. That being said, a recommended phasing plan for the Upland
County Park development has been laid out further along in this section of the park narrative.

Trail & Greenway Connections

Upland County Park has the luxury of directly connecting to a major rail trail corridor in the Chester Creek Rail Trail. Although the trail does not currently exist adjacent to Upland County Park, sections of the rail trail are being constructed to the north in Aston Township. The trail is slated to eventually follow Chester Creek by Upland County Park and down to the City of Chester where it will connect into the East Coast Greenway.

It is strongly recommended that Delaware County create a pedestrian link from Upland County Park, across Chester Creek to the Chester Creek Rail Trail. This will provide another way for people to access the park and create additional park usage by directly connecting major population bases in the City of Chester and the thousands of users of the East Coast Greenway between Philadelphia and Baltimore.

Park Programming

With the long range Upland County Park site development plan and the idea of the park taking on the identity of a regional recreation hub, there are many opportunities to increase park programming and potentially capitalize on revenues associated with certain programs.

Park programming can take on so many different meanings and programming can change from season to season and year to year. Some general park programming elements as it relates to the Upland County Park Site Development Plan are as follows:

1) Community garden plots
2) Organized active recreation leagues, field and court rentals
3) Concessions
4) Community Center – The community center, aside from the programming mentioned previously in the recommendations section of this narrative, could host a wide variety of events and

programs from yoga classes to community social gatherings or meetings. Space could be rented out for such use.

5) With the recommendation of a County Parks and Recreation presence within Upland County Park, county staff offices would be an element of the park.
6) Outdoor fitness classes

Management

It is recommended that Upland County Park, at full build out, have on-site staffing to manage the parks everyday operations. At a minimum, the park should have a program manager, maintenance manager and staff. Upland County Park will eventually not be able to be operated remotely (as it currently operates in 2014). The level of proposed facilities and operation of those facilities would constitute a team to efficiently run the park. Delaware County Parks and Recreations staff would also create a presence in the park which inherently provides a certain level of security and awareness.

Maintenance and Operations

The mission of an operation and maintenance program for Upland County Park is to create a regularly scheduled routine, reactive, and preventative maintenance system that guides the stewardship of the park in a way that provides a safe, sustainable, and aesthetically pleasing County and community asset that is operational for public use.

Upland County Park will be a major part of the Delaware County Park system. This fact points to the park garnering high use and visitation rates. With improved park access, amenities and increased awareness, the usage rates of the park shall steadily increase over time. Keeping the park well maintained will prove to be an important task in the sustainable success of the park.

Maintenance and Operations Tasks

Upland County Park maintenance tasks and schedule typically involves mowing, keeping the grounds free of trash and debris, removal of downed limbs or dead trees, snow removal, inspection and repair of permanent structures, fencing, park amenities and parking areas on a per year basis.

Grass & Turf Care

Cut once every 10 working days. A grass clipping deposit area should be designated on site for composting located away from park waterbodies. Aeration of grass area is not necessary unless grass quality indicates a need or an application of fertilizer is anticipated. Reseed and sod only when major bare spots are present. Weeding shall ensue when grass is 50% weed infested or grass quality is low in 15% or more of the surface.

Fertilizer

Apply only when grass vigor seems low. Low level applications can be administered on a once per year basis.

Irrigation

No irrigation should be anticipated.

Planting Beds

Landscape bed areas should be kept in a weed, leaf and debris-free condition. Plants should be trimmed to maintain desired shape and to maintain natural growth habit of plant species.

Litter Control
Litter service is needed two times a week or as necessary. In times of warmer weather and increased use, litter control may be more frequent.

Disease and Insect Control
Done only on epidemic or serious complaint basis. Pest, weed and rodent control measures may be put into effect when the health or survival of the plant material is threatened or where public's comfort is concerned.

Snow Removal
Snow removal shall only be necessary after all snowfall events. Snow removal shall be accomplished by the day following the snowfall.

Lighting
Replacement or repair of fixtures when a report is filed or when a malfunction is detected by inspection staff.

Amenity and Permanent Structure Repairs
Should be accomplished immediately when safety or function is at question.

General Inspection
Once per week.

The following routine preventative maintenance program and schedule has been fashioned to reflect the projected amount of park use at full park build out.

Table 7-1: General Maintenance and Operation Frequencies

Operation	Frequency					
	Daily	Weekly	Monthly	Quarterly	Annually	As Needed
Parking Areas						
Inspection		x				
Repair						x
Remove Litter						x
Remove Snow						x
Permanent Structures						
New & Rehabilitated Bridges						
Inspection				x		
Repair						x
Stormwater Management Facilities						
Inspection / Clear Obstructions				x		
Repair						x
Landscape Maintenance						
Mowing			2x			
Trimming						x
Leaf Removal					x	
Tree Pruning					x	x
Tree Replacement						x
Seasonal Plantings				x		
Weeding				x		
Mulching					x	
Fertilizing / Treatment					x	x
Watering / Irrigation						x
Cleaning						
Empty Trash Cans		2x				
Restroom Facilities		x				x
Remove Litter		2x				x
Amenity Maintenance						
Lighting						
Inspection			x			
Repair / Replace						x
Signage						
Inspection			x			
Cleaning					x	
Repair / Replace						x

Table 7-1: General Maintenance and Operation Frequencies (cont.)

Operation	Frequency					
	Daily	Weekly	Monthly	Quarterly	Annually	As Needed
Railings / Fencing						
Inspection			x			
Repair / Replace						x
Furnishings						
Inspection			x			
Repair / Replace						x
Bollards / Gates						
Inspection			x			
Repair / Replace						x
Other Services						
Update Park Kiosk Information						x
Security Patrol	x					
Graffiti Removal						x

Tree Care

Tree care is important to sustaining and guiding responsible tree growth within Upland County Park. Trees and other woody plant material respond biologically to pruning in specific and predictable ways. Careful study of these responses has led to pruning practices that can best develop, preserve, and enhance the structural integrity, beauty and functional value of trees. Through pruning, one can: maintain or direct plant form; enhance health and appearance; influence flowering, fruiting, and vigor; regulate growth; control plant size; and invigorate declining plants. Tree pruning should occur annually but may be needed in emergency situations. The following are high and medium to low priorities for emergency pruning:

High Priority

1) Trees or limbs that have fallen and caused accidents or personal injury.
2) Trees or limbs that have fallen and caused damage to the trail, vehicles, or structures.
3) Trees or limbs which are in immediate danger of falling or breaking.
4) Broken hanging limbs adjacent to the trail, structures, roads, or picnic or play areas.
5) Trees or limbs that block roads or access points.

Medium to Low Priority:

1) Trees or limbs that have fallen and are not an immediate hazard.
2) Trees or limbs that have fallen and are not blocking the trail, roads or access points.
3) Hanging tree limbs that may not be in immediate danger of falling.
4) Dead or severely declining trees without a target present.

Timing of tree pruning can vary. Trees deemed as hazardous should be pruned immediately and during any season. Generally, light pruning can be done at any time during the year on most species if the trees are in good health. Most deciduous plants can be pruned during the dormant period between leaf fall and the end of winter. This can minimize the risk of pest problems. Avoid pruning broadleaf trees in early to late spring. Evergreens will be set back the least if they are pruned in the late winter. It is

recommended to evaluate each tree before pruning and avoid large scale pruning efforts during the bird nesting season. There are many types of tree pruning practices to achieve certain desired results. Pruning can be performed for structure, general cleaning, thinning, raising, reducing, and/or restorations.

Pruning for Structure

Structural pruning is the removal of live branches and stems to influence structural integrity. It usually follows four procedures: 1) Canopy cleaning by removing dead, broken, diseased and dying branches, 2) development or re-establishment of a dominant leader, 3) establishment of the lowest permanent scaffold limb and 4) establishment of scaffold limbs by removing competing stems or branches.

Pruning to Clean

Cleaning is the selective removal of dead, diseased, detached, rubbing and broken branches. This type of pruning is done to reduce the risk of branch failure and the transmission of decay, insects and diseases.

Pruning to Thin

Thinning is the selective removal of small live branches to reduce crown density. Branches are 0.25 to 1.00 inches in diameter. 10-15 percent of live foliage can be removed at one time. If more pruning is desired, it should not exceed 25 percent in a single year. Excessive removal of small branches on the lower two-thirds of a branch or stem is called lion tailing and may have an adverse effect on the tree – it is not an accepted practice.

Pruning to Raise

Raising is the selective removal of branches to provide vertical clearance. Caution must be taken to not remove too many lower branches. This can cause slow development of trunk taper, cause cracks or decay in the trunk, or transfer too much weight to the top of the tree.

Pruning to Reduce (Drop Crotch)

Reduction is the selective removal of branches and stems to decrease the height and/or spread of a tree. This type of pruning is done to minimize the risk of failure, to reduce height or spread, for utility clearance, to clear vegetation from buildings or other structures, or to improve tree appearance. Crown reduction shall be accomplished with reduction cuts rather than heading cuts.

Pruning to Restore

Restoration is the selective removal of branches, sprouts, and stubs from trees that have been topped, severely headed, vandalized, lion –tailed, broken during a storm, or otherwise damaged. Full restoration usually requires several pruning events over a number of years.

Pruning Conifers

Conifers are primarily pruned to control the density of branching, the shape of young trees, and the size of older ones. They are intolerant of topping or heading. Conifers typically have an ex-current growth habit, which is usually maintained throughout the lifespan of the tree. Thinning, by the selective removal of small branches, is the most appropriate method when pruning conifers.

Tree Removal and Replacement

Trees should be removed in Upland County Park for the following reasons: the tree is dead or dying; it is diseased; it is damaged or injured to the extent that it is likely to die and become a hazard, or is constituted as a hazard. Nuisance trees should be removed when the tree causes or is about to cause impairment to the park.

It is most desirable to replace a tree of the same (native) species in the same place it was removed, but sometimes crowding and other physical constraints make it impossible to replace the tree in the same spot. In this case, finding an alternate location is the best option. Undesirable species (non-native) are not to be replaced. It is a responsible and environmentally friendly idea to plant desirable, sustainable trees within the park.

Recommended Native Plant Material

It is a sustainable practice to design with and use native plant material within Upland County Park whenever possible. Native plant material is hardy and requires less watering and general care because it is naturally acclimated to the seasons and weather cycles of the region. The following is a list of plant material native to Pennsylvania:

Table 7-2: Native Plant Material for Upland County Park

Medium to Large Trees

Common Name	Scientific Name	Bloom Period	Height	Notes
Red Maple	*Acer rubrum*	Mar-Apr	40-60 ft.	Red flowers; adaptable; fall color
Sugar Maple	*acer saccharum*	Apr-May	60-75 ft.	Yellow flowers in spring; fall color; maple syrup
Yellow Birch	*Betula alleghaniensis*	Apr-May	60-80 ft.	Catkins in winter
Black Birch	*Betula lenta*	Apr-May	45-55 ft.	Catkins in winter
River Birch	*Betula nigra*	Apr-May	60-80 ft.	Catkins; striking bark
Eastern White Pine	*Pinus strobus*	N/A	50-80 ft.	N/A
White Oak	*Quercus alba*	Mar-Jun	50-100 ft.	Edible nuts
Chestnut Oak	*Quercus montana*	May-Jun	40-75 ft.	Fall color; nuts attractive to wildlife

Small Trees and Shrubs

Common Name	Scientific Name	Bloom Period	Height	Notes
Smooth Alder	*Alnus serrulata*	Mar-Apr	6-10 ft.	Yellow catkins; multi-stemmed; needs wet soil
Serviceberry	*Amelanchier arborea*	Mar-May	15-25 ft.	White flowers in spring; edible berries; fall color
Alternate-leaved Dogwood	*Cornus alternifolia*	May-Jun	15-25 ft.	White flowers in early summer; blue berries
Flowering Dogwood	*Cornus florida*	Apr-Jun	10-30 ft.	White branchts in spring; red berries
Winterberry	*Ilex verticillata*	May-Jun	6-10 ft.	Showy berries in winter; multi-stemmed
Mountain Laurel	*Kalmia latifolia*	May-Jul	7-15 ft.	White flowers; evergreen; multi-stemmed; PA state flower
Spicebush	*Lindera benzoin*	Mar-May	6-12 ft.	Berries and foliage in fall; multi-stemmed; ferbal uses
Wild Plum	*Prunus americana*	Apr-May	15-25 ft.	White flowers; edible fruit; nulti-stemmed
Elderberry	*Sambucus canadensis*	Jun-Jul	5-15 ft.	White flowers; multi-stemmed; edible berries & flowers
Highbush Blueberry	*Vaccinium corymbosum*	May-Jun	6-12 ft.	White flowers; multi-stemmed; edible berries; fall colors
Arrow-wood	*Viburmun recognitum*	May-Jun	3-15 ft.	White flowers in late spring; multi-stemmed
Virginia Creeper	*Parthenocissus quinquefolia*	July	10-40 ft.	Fall color; berries improtant for wildlife; considered a vine

Grasses (Perennial)

Common Name	Scientific Name	Bloom Period	Height	Notes
Lurid Sedge	*Carex lurida*	Jun-Oct	1-2 ft.	Wetland plant; interseting seeds
Bottlebrush Grass	*Elymus hystix*	Jun-Aug	2-4 ft.	Grass that grows in shade
Virginia Wild-rye	*Elymus virginicus*	Jul-Sep	2-4 ft.	Grass that tolerates a wide range of conditions

Ferns (Perennial)

Common Name	Scientific Name	Bloom Period	Height	Notes
Maidenhair Fern	*Adiantum pedatum*	N/A	1-2 ft.	Grows in clumps; delicate texture; herbal uses
Evergreen Shield Fern	*Dryopteris marginalis*	N/A	1-3 ft.	Evergreen; clump-forming; attractive
Interrupted Fern	*Osmunda claytoniana*	N/A	2-4 ft.	Grows in clumps; distinctive fronds
Christmas Fern	*Polystichum achrostichoides*	N/A	1-2 ft.	Evergreen; grows in clumps

Showy Flowers (Perennial)

Common Name	Scientific Name	Bloom Period	Height	Bloom Color & Notes
Wild Columbine	*Aquilegia canadensis*	Apr-Jun	1-3 ft.	Red & Yellow - Commonly cultivated; spreads by seeds; hummingbirds
Jack-in-the-pulpit	*Arisaema triphyllum*	Apr-Jun	1-3 ft.	Green-purple - Unusual flower; bright red berries
Wild Ginger	*Asarum canadense*	Apr-May	< 1 ft.	Maroon - Edible and herbal uses
Butterfly-weed	*Asclepias tuberosa*	May-Sep	1-3 ft.	Orange - Butterfly plant; tolerates dry conditions; taproot
Turtlehead	*Chelone glabra*	Jul-Sep	1-3 ft.	Whitish - Tolerates wet areas; strong grower; herbal uses; hummingbirds
White snakeroot	*Eupatorium rugosum*	Jul-Oct	2-3 ft.	White - Tough plant; can grow in dry shade; cultivars availible
Wood Geranium	*Geranium maculatum*	Apr-Jul	1-2 ft.	Rose - Adaptable plant; long bloom time spreader; herbal uses
Common Sneezeweed	*Helenium autumnale*	Aug-Oct	2-6 ft.	Yellow - Tolerates wet areas; showy flowers; herbal uses
Sunflowers	*Helianthus sp.*	Jul-Sep	4-6 ft.	Yellow - Perennials; often aggressive; showy flowers; good for birds
Oxeye Sunflower	*Heliopsis helianthoides*	Jul-Sep	1-5 ft.	Yellow - long bloom time; butterfly plant
Alum-root	*Heuchera americana*	May-Aug	1-2 ft.	Greenish - Long bloom time; many culitvars and hybrids
Cardinal Flower	*Lobelia cardinalis*	Jul-Sep	2-5 ft.	Scarlet - Long bloom time; butterfly and hummingbird plant
Great Blue Lobelia	*Lobelia siphilitica*	Jul-Oct	1-3 ft.	Blue - Long bloom time; white cultivars; hummingbirds
Partridge-berry	*Mitchella repens*	Jun-Jul	< 1 ft.	White - Evergreen; ground cover; berry edible and showy
Bee-balm	*Monarda didyma*	Jul-Aug	2-5 ft.	Red - Showy flowers; aromatic; butterfly plant; herbal uses
Phlox	*Phlox divaricata*	May-jun	1-2 ft.	Lilac - Aromatic; butterfly plant
Phlox	*Phlox maculata*	Jul-Sep	1-3 ft.	Purple - Aromatic; showy flowers; butterfly plant
Phlox	*Phlox paniculata*	Jul-Oct	2-5 ft.	Pink - Aromatic; showy flowers; butterly plant
May-apple	*Podophyllum petatum*	May	1-2 ft.	White - Ground cover, edible fruit; mottled foliage
Jacob's Ladder	*Polemonium reptans*	Apr-Jun	1-2 ft.	Blue - Attractive flowers; slow spreader; herbal uses
Solomon's Seal	*Polygonatum pubescens*	Apr-Jun	1-3 ft.	Yellow - Not fussy; blue berries; herbal and edible uses
Black-eyes Susan	*Rudbeckia hirta*	May-Sep	2-3 ft.	Orange - Bright daisy-like flowers; long bloom time; many cultivars
Bloodroot	*Sanguinaria canadensis*	Mar-May	< 1 ft.	White - Red juice; herbal uses
Golden Ragwort	*Senecio aureus*	May-Jul	1-2 ft.	Yellow - Wetland plant; long bloom time; early daisy-like flowers
False Solomon's Seal	*Smilacina racemosa*	May-Jul	1-2 ft.	White - Plume like flower; re berries; herbal uses
Wrinkle-leaf Goldenrod	*Solidago rugosa*	Jul-Nov	2-6 ft.	Yellow - Aggressive; tough plant; butterfly plant
Tall Meadow-rue	*Thalictrum pubescens*	May-Jun	2-8 ft.	White - Wet to moist soil; tall plant; delicate flowers
Foamflower	*Tiarella cordifolia*	Apr-Jun	< 1 ft.	White - Attractive, long-blooming flower; many cultivars
Trillium	*Trillium grandiflorum*	Apr-Jun	1-2 ft.	White - Showy flowers
American Dog Violet	*Viola conspersa*	Apr-May	< 1 ft.	Violet - Delicate plant and flower; edible
Common Blue Violet	*Viola sororia*	Apr-May	< 1 ft.	Violet - Delicate plant and flower; edible
Golden-alexanders	*Zizia aurea*	Apr-Jun	1-2 ft.	Gold - Not fussy; attracts good insects

RECOMMENDED PHASING & COST PROJECTIONS (ESTIMATES)

The following are recommended phasing and estimated cost projections for each phase of development for Upland County Park. The Phases have been broken down into three different phases: Phase I – Short Term (0-5 years); Phase II – Medium Term (5-15 Years); and Phase III – Long Term (15-30 Years).

The following phasing recommendations and estimated costs are based on 2014 dollars, the current park condition, outlook of capital expenditure and funding, and proposed development. Recommendations are fluid and always susceptible to change for any number of reasons: cost increases in materials, priorities change, use and demographic changes, unexpected funding sources (or lack thereof). Phasing recommendations are always a best guess of how the park will most likely develop over the next 30 or 40 years and the phases will most likely overlap somewhat. All estimated costs assume furnish and install prices.

Phase I – Short Term (0-5 Years)

1) Improve Upland County Park (and overall County Park) Signage
2) Community Garden Plots
3) Begin improvement and development of the park pedestrian circulation network
4) Begin installation of park amenities, benches and seating areas (including picnic groves)
5) Define open spaces and lawn areas with native plant material and naturalized meadows
6 Implement on-site compost and recycling area
7) Advocate for park "friends" groups and foster partnerships with local business and recreation organizations

Table 7-3: Upland County Park - Phase I: Short Term (0-5 Years) Cost Estimate

Description	Cost Basis	Quantity	Unit Price	Total Cost
1) Upland County Park Signage				
Kiosks	LS	1	$11,800.00	**$11,800.00**
Roadway	LS	1	$4,300.00	**$4,300.00**
Interpretive	LS	1	$8,200.00	**$8,200.00**
Directional, Informational & General Park	LS	1	$5,400.00	**$5,400.00**
2) Community Garden Plots				
building community garden plots	LS	1	$7,500.00	**$7,500.00**
3) Begin Park Pedestrian Circulation Network				
Paved Multi-use Path	SY	6200	$52.00	**$322,400.00**
Concrete Sidewalk	SY	2500	$63.00	**$157,500.00**
Road Crossings	Each	16	$1,200.00	**$19,200.00**
Earthen Path	SY	600	$19.00	**$11,400.00**
4) Begin Implementing Park Amenities				
Benches	Each	60	$725.00	**$43,500.00**
Trash Cans	Each	30	$560.00	**$16,800.00**
Picnic Grove & Tables	Each	2	$6,800.00	**$13,600.00**
5) Begin Developing Open Space, Meadows, Lawn Areas				
Landscaping, Planting and Seeding	LS	1	$107,000.00	**$107,000.00**
6) On-site Compost and Recycling Area				
Building On-site Compost and Recycling Area	LS	1	$3,800.00	**$3,800.00**
7) Develop Local Partnerships				
Delaware County Staff Time	LS	1	$23,000.00	**$23,000.00**
Phase I Total				**$755,400.00**

Note: Costs associated with Design and Maintenance have not been built into the costs per phase. Design work needed for any park improvement items would carry a cost of approximately 15% of the estimated construction/installation cost of the improvement.

Phase II – Medium Term (5-15 Years)

1) Continue improvement and development of the park pedestrian circulation network
2) Continue Installation of park amenities, benches and seating areas (including picnic groves)
3) Create pedestrian / park user link with Race Street, the Caleb Pusey House site, and the Chester Creek Rail Trail (would require a bridge over Chester Creek)
4) Widen and develop existing access drive network with new park access points
5) A large pavilion area
6) Implement a memorial garden in the former site of the Netherleigh Mansion
7) New basketball and tennis courts
8) Continue developing open spaces and lawn areas with native plant material and naturalized meadows

Table 7-4: Upland County Park - Phase II: Medium Term (5-15 Years) Cost Estimate

Description	Cost Basis	Quantity	Unit Price	Total Cost
1) Continue Park Pedestrian Circulation Network				
Paved Multi-use Path	SY	4000	$52.00	**$208,000.00**
Concrete Sidewalk	SY	1250	$63.00	**$78,750.00**
Road Crossings	Each	3	$1,200.00	**$3,600.00**
Earthen Path	SY	600	$19.00	**$11,400.00**
2) Continue Implementing Park Amenities				
Benches	Each	12	$725.00	**$8,700.00**
Trash Cans	Each	6	$560.00	**$3,360.00**
Picnic Grove & Tables	Each	3	$6,800.00	**$20,400.00**
3) Ped. link to Race St./Pusey site/Chester Creek Rail trail				
Paved Multi-use Path to Race St.	SY	400	$52.00	**$20,800.00**
New Pedestrian Bridge	LS	1	$380,000.00	**$380,000.00**
Paved Multi-use Path to Chester Creek Rail trail	SY	900	$52.00	**$46,800.00**
4) Park Access Drive Widening and New Entrances				
Paved Access Drive and Entrances	SY	11400	$93.00	**$1,060,200.00**
5) Large Pavilion				
Pavilion	LS	2	$26,000.00	**$52,000.00**
6) Netherleigh Memorial Garden				
Landscaping, Planting, Walls and Seeding	LS	1	$185,000.00	**$185,000.00**
7) Basketball and Tennis Courts				
Basketball Courts	LS	1	$330,000.00	**$330,000.00**
Tennis Courts	LS	1	$224,000.00	**$224,000.00**
8) Continue Developing Open Space, Meadows, Lawn Areas				
Landscaping, Planting and Seeding	LS	1	$36,000.00	**$36,000.00**
Phase II Total				**$2,669,010.00**

Phase III – Long Term (15-30 Years)

1) Continue improvement and development of the park pedestrian circulation network
2) Continue installation of park amenities, benches and seating areas (including picnic groves)
3) Redesign of the existing playing fields / baseball fields
4) Tot-Lot expansion - spray / splash-park, fitness stations, concession stand and restrooms
5) Redesign / improvement of existing parking facilities and the addition of five new parking areas
6) Implement new football field with rugby conversion capabilities
7) New community / recreation / senior center
8) Continue developing open spaces and lawn areas with native plant material and naturalized meadows

Table 7-5: Upland County Park - Phase III: Long Term (15-30 Years) Cost Estimate

Description	Cost Basis	Quantity	Unit Price	Total Cost
1) Continue Park Pedestrian Circulation Network				
Paved Multi-use Path	SY	800	$52.00	**$41,600.00**
Concrete Sidewalk	SY	300	$63.00	**$18,900.00**
2) Continue Implementing Park Amenities				
Benches	Each	6	$725.00	**$4,350.00**
Trash Cans	Each	3	$560.00	**$1,680.00**
3) Redesign of Existing Playing Fields				
Playing field improvements	LS	1	$290,000.00	**$290,000.00**
4) tot-lot expansion				
Spray/Splash Park	LS	1	$185,000.00	**$185,000.00**
Fitness Stations	LS	1	$32,000.00	**$32,000.00**
New Concessions stand	LS	1	$86,000.00	**$86,000.00**
New Restrooms	LS	1	$68,000.00	**$68,000.00**
5) Improve Ex. Parking Areas/Construct 5 New Parking Areas				
Improve Existing Parking Areas	LS	1	$175,000.00	**$175,000.00**
Implementation of 5 New Paved Parking Areas	SY	8800	$93.00	**$818,400.00**
6) New Football/Rugby Field				
New Field	LS	1	$455,000.00	**$455,000.00**
7) New Community / Recreation / Senior Center				
New Facility	LS	1	$8,500,000.00	**$8,500,000.00**
8) Continue Developing Open Space, Meadows, Lawn Areas				
Landscaping, Planting and Seeding	LS	1	$70,000.00	**$70,000.00**
Phase III Total				**$2,669,010.00**

APPENDIX U-1: UPLAND COUNTY PARK SOILS

Hydrologic Soil Group—Delaware County, Pennsylvania
(Upland County Park)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Delaware County, Pennsylvania
Survey Area Data: Version 7, Dec 14, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 17, 2010—May 10, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Delaware County, Pennsylvania (PA045)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
CdA2	Chester silt loam, 0 to 3 percent slopes, moderately eroded	B	7.2	4.4%
CdB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B	33.4	20.4%
CdC2	Chester silt loam, 8 to 15 percent slopes, moderately eroded	B	6.3	3.9%
Ch	Chewacla silt loam	C	7.3	4.4%
Cn	Congaree silt loam	B	9.4	5.8%
GeB2	Glenelg channery silt loam, 3 to 8 percent slopes, moderately eroded	B	9.0	5.5%
GeC2	Glenelg channery silt loam, 8 to 15 percent slopes, moderately eroded	B	34.9	21.3%
GeD	Glenelg channery silt loam, 15 to 25 percent slopes	B	7.2	4.4%
GeD2	Glenelg channery silt loam, 15 to 25 percent slopes, moderately eroded	B	4.1	2.5%
GeD3	Glenelg channery silt loam, 15 to 25 percent slopes, severely eroded	B	2.4	1.5%
GnC2	Glenville silt loam, 8 to 15 percent slopes, moderately eroded	C	4.8	3.0%
Ma	Made land, gravelly materials	B/D	3.9	2.4%
Me	Made land, schist and gneiss materials	B	26.5	16.2%
Mf	Made land, sanitary land fill	A	2.4	1.4%
We	Wehadkee silt loam	D	4.8	2.9%
Totals for Area of Interest			**163.6**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Report—Physical Soil Properties

Physical Soil Properties–Delaware County, Pennsylvania														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
CdA2—Chester silt loam, 0 to 3 percent slopes, moderately eroded														
Chester	0-8	-30-	-54-	10-17- 23	1.10-1.30	4.23-14.11	0.12-0.16	0.0-2.9	1.0-3.0	.32	.37	5	5	56
	8-33	-18-	-55-	18-28- 35	1.20-1.50	4.23-14.11	0.10-0.14	0.0-2.9	0.0-0.5	.43	.49			
	33-64	-43-	-40-	10-17- 24	1.40-1.60	4.23-14.11	0.08-0.12	0.0-2.9	0.0-0.5	.49	.55			
CdB2—Chester silt loam, 3 to 8 percent slopes, moderately eroded														
Chester	0-8	-30-	-54-	10-17- 23	1.10-1.30	4.23-14.11	0.12-0.16	0.0-2.9	1.0-3.0	.32	.37	5	5	56
	8-33	-18-	-55-	18-28- 35	1.20-1.50	4.23-14.11	0.10-0.14	0.0-2.9	0.0-0.5	.43	.49			
	33-64	-43-	-40-	10-17- 24	1.40-1.60	4.23-14.11	0.08-0.12	0.0-2.9	0.0-0.5	.49	.55			
CdC2—Chester silt loam, 8 to 15 percent slopes, moderately eroded														
Chester	0-8	-30-	-54-	10-17- 23	1.10-1.30	4.23-14.11	0.12-0.16	0.0-2.9	1.0-3.0	.32	.37	5	5	56
	8-33	-18-	-55-	18-28- 35	1.20-1.50	4.23-14.11	0.10-0.14	0.0-2.9	0.0-0.5	.43	.49			
	33-60	-43-	-40-	10-17- 24	1.40-1.60	4.23-14.11	0.08-0.12	0.0-2.9	0.0-0.5	.49	.55			

Physical Soil Properties–Delaware County, Pennsylvania														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
Ch—Chewacla silt loam														
Chewacla	0-9	-27-	-54-	15-20- 25	1.20-1.40	4.23-14.11	0.14-0.20	0.0-2.9	2.0-4.0	.37	.37	5	5	56
	9-60	-19-	-54-	18-27- 35	1.20-1.50	4.23-14.11	0.14-0.18	0.0-2.9	0.0-0.5	.37	.37			
	60-64	—	—	5- 9- 12	1.20-1.50	14.11-141.14	0.04-0.08	0.0-2.9	0.0-0.5	.24	.24			
Cn—Congaree silt loam														
Comus	0-12	-32-	-56-	5-12- 18	1.20-1.40	4.23-14.11	0.13-0.21	0.0-2.9	2.0-4.0	.43	.43	5	5	56
	12-39	-32-	-56-	5-12- 18	1.20-1.40	4.23-14.11	0.13-0.21	0.0-2.9	1.0-4.0	.43	.43			
	39-60	—	—	5-20- 34	1.30-1.60	4.23-42.34	0.07-0.21	0.0-2.9	0.5-1.0	.28	.32			
GeB2—Glenelg channery silt loam, 3 to 8 percent slopes, moderately eroded														
Glenelg	0-8	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.32	.64	5	6	48
	8-26	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.64			
	26-60	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.64			
GeC2—Glenelg channery silt loam, 8 to 15 percent slopes, moderately eroded														
Glenelg	0-8	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.32	.64	5	6	48
	8-26	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.64			
	26-60	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.64			

Physical Soil Properties–Delaware County, Pennsylvania														
Map symbol and soil name	**Depth**	**Sand**	**Silt**	**Clay**	**Moist bulk density**	**Saturated hydraulic conductivity**	**Available water capacity**	**Linear extensibility**	**Organic matter**	**Erosion factors**			**Wind erodibility group**	**Wind erodibility index**
										Kw	**Kf**	**T**		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
GeD—Glenelg channery silt loam, 15 to 25 percent slopes														
Glenelg	0-8	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.32	.32	5	6	48
	8-29	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.49			
	29-50	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.55			
GeD2—Glenelg channery silt loam, 15 to 25 percent slopes, moderately eroded														
Glenelg	0-8	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.32	.64	5	6	48
	8-26	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.64			
	26-60	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.64			
GeD3—Glenelg channery silt loam, 15 to 25 percent slopes, severely eroded														
Glenelg	0-8	-27-	-54-	15-20- 25	1.10-1.40	4.23-14.11	0.14-0.17	0.0-2.9	1.0-3.0	.32	.64	4	6	48
	8-26	-20-	-54-	20-26- 32	1.20-1.60	4.23-14.11	0.14-0.20	0.0-2.9	0.0-0.5	.43	.64			
	26-60	-46-	-42-	5-13- 20	1.20-1.40	4.23-14.11	0.10-0.20	0.0-2.9	0.0-0.5	.49	.64			

Physical Soil Properties–Delaware County, Pennsylvania														
Map symbol and soil name	**Depth**	**Sand**	**Silt**	**Clay**	**Moist bulk density**	**Saturated hydraulic conductivity**	**Available water capacity**	**Linear extensibility**	**Organic matter**	**Erosion factors**			**Wind erodibility group**	**Wind erodibility index**
										Kw	**Kf**	**T**		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
GnC2—Glenville silt loam, 8 to 15 percent slopes, moderately eroded														
Glenville	0-10	-30-	-55-	10-15- 20	1.20-1.40	4.23-14.11	0.16-0.20	0.0-2.9	2.0-4.0	.32	.32	3	5	56
	10-16	-30-	-55-	12-15- 35	1.40-1.60	4.23-14.11	0.12-0.16	0.0-2.9	0.0-0.5	.24	.32			
	16-30	-30-	-56-	10-14- 35	1.40-1.80	0.42-4.23	0.08-0.12	0.0-2.9	0.0-0.5	.24	.28			
	30-50	-18-	-55-	20-28- 35	1.60-1.80	0.42-4.23	0.08-0.12	0.0-2.9	0.0-0.5	.24	.28			
	50-70	-44-	-41-	5-15- 25	1.40-1.60	1.41-4.23	0.06-0.12	0.0-2.9	0.0-0.5	.24	.32			
Ma—Made land, gravelly materials														
Udorthents, shale and sandstone	0-6	-29-	-53-	8-18- 27	0.90-1.30	1.41-42.34	0.02-0.06	0.0-2.9	1.0-5.0	.43	.43	3	8	0
	6-60	-19-	-54-	6-27- 50	1.00-1.60	0.42-141.14	0.01-0.08	0.0-2.9	0.0-0.5	.17	.28			
Me—Made land, schist and gneiss materials														
Udorthents, schist and gneiss	0-3	-27-	-54-	15-20- 25	1.00-1.45	0.42-4.23	0.14-0.18	0.0-2.9	1.0-2.0	.37	.43	4	5	56
	3-40	-20-	-54-	25-26- 35	1.30-1.60	0.42-1.41	0.14-0.20	3.0-5.9	1.0-2.0	.37	.37			
	40-60	-20-	-54-	25-26- 35	1.30-1.60	0.42-1.41	0.14-0.20	3.0-5.9	1.0-2.0	.37	.37			

Physical Soil Properties–Delaware County, Pennsylvania														
Map symbol and soil name	**Depth**	**Sand**	**Silt**	**Clay**	**Moist bulk density**	**Saturated hydraulic conductivity**	**Available water capacity**	**Linear extensibility**	**Organic matter**	**Erosion factors**			**Wind erodibility group**	**Wind erodibility index**
										Kw	**Kf**	**T**		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
Mf—Made land, sanitary land fill														
Udorthents, sanitary landfill	0-24	-38-	-36-	10-27- 60	1.20-1.80	0.00-14.11	0.08-0.18	3.0-5.9	0.0-4.0	.43	.43	3	8	0
	24-70	—	—	—	—	—	—	—	0.0-0.5					
We—Wehadkee silt loam														
Wehadkee	0-9	-30-	-55-	10-15- 20	1.20-1.40	4.23-14.11	0.16-0.22	0.0-2.9	2.0-4.0	.37	.37	5	5	56
	9-28	-21-	-55-	15-25- 35	1.20-1.40	4.23-14.11	0.16-0.20	0.0-2.9	0.0-0.5	.20	.20			
	28-60	-18-	-55-	10-28- 35	1.20-1.50	4.23-14.11	0.10-0.14	0.0-2.9	0.0-0.5	.20	.20			
	60-64	—	—	5-25- 45	1.10-1.60	14.11-42.34	0.04-0.08	0.0-2.9	0.0-0.5	.20	.20			

Data Source Information

Soil Survey Area: Delaware County, Pennsylvania
Survey Area Data: Version 7, Dec 14, 2013

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic group is a group of soils having similar runoff potential under similar storm and cover conditions. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash.

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
CdA2—Chester silt loam, 0 to 3 percent slopes, moderately eroded														
Chester	90	B	0-8	Silt loam	CL, ML	A-4, A-7	0	0-10	85-100	80-100	70-100	50-90	22-27	5-10
			8-33	Silty clay loam, silt loam, clay loam	CL, ML	A-4, A-6, A-7	0	0-10	85-100	80-100	70-100	55-95	30-50	8-17
			33-64	Silt loam, loam, sandy loam	SM, ML, SC	A-2, A-4, A-7	0	0-10	80-100	80-100	60-100	30-90	15-47	4-12
CdB2—Chester silt loam, 3 to 8 percent slopes, moderately eroded														
Chester	90	B	0-8	Silt loam	CL, ML	A-4, A-7	0	0-10	85-100	80-100	70-100	50-90	22-27	5-10
			8-33	Silty clay loam, silt loam, clay loam	CL, ML	A-4, A-6, A-7	0	0-10	85-100	80-100	70-100	55-95	30-50	8-17
			33-64	Silt loam, loam, sandy loam	ML, SC, SM	A-2, A-4, A-7	0	0-10	80-100	80-100	60-100	30-90	15-47	4-12

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
CdC2—Chester silt loam, 8 to 15 percent slopes, moderately eroded														
Chester	90	B	0-8	Silt loam	CL, ML	A-4, A-7	0	0-10	85-100	80-100	70-100	50-90	22-27	5-10
			8-33	Silty clay loam, silt loam, clay loam	CL, ML	A-4, A-6, A-7	0	0-10	85-100	80-100	70-100	55-95	30-50	8-17
			33-60	Silt loam, loam, sandy loam	ML, SC, SM	A-2, A-4, A-7	0	0-10	80-100	80-100	60-100	30-90	15-47	4-12
Ch—Chewacla silt loam														
Chewacla	85	C	0-9	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	80-100	70-100	65-100	55-95	22-35	2-12
			9-60	Silt loam, loam, silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	80-100	75-100	65-100	55-85	22-35	2-12
			60-64	Stratified sand to silt	GM, ML, SM	A-1, A-2, A-4	0	0	25-100	20-100	20-85	15-65	15-35	NP-7
Cn—Congaree silt loam														
Comus	90	B	0-12	Silt loam	CL, ML, SC, SM	A-2, A-4, A-6	0	0-5	85-100	80-100	55-100	30-90	30-40	6-15
			12-39	Silt loam, fine sandy loam, loam	CL, ML, SC, SM	A-2, A-4, A-6	0	0-5	85-100	80-100	55-100	30-90	30-40	6-15
			39-60	Stratified gravelly loamy sand to loam	CL, GM, ML, SM	A-1, A-2, A-4, A-6	0	0-20	55-100	45-100	25-100	15-95	15-40	NP-20

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
GeB2—Glenelg channery silt loam, 3 to 8 percent slopes, moderately eroded														
Glenelg	85	B	0-8	Channery silt loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	60-100	50-75	40-75	30-70	32-40	7-12
			8-26	Channery silt loam, silty clay loam, loam	GM, ML, SM	A-4, A-6, A-7	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			26-60	Loam, sandy loam, channery loam	GM, ML, SM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	15-40	NP-6
GeC2—Glenelg channery silt loam, 8 to 15 percent slopes, moderately eroded														
Glenelg	85	B	0-8	Channery silt loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	60-100	50-75	40-75	30-70	32-40	7-12
			8-26	Channery silt loam, silty clay loam, loam	GM, ML, SM	A-4, A-6, A-7	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			26-60	Loam, sandy loam, channery loam	ML, SM, GM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	15-40	NP-6

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
GeD—Glenelg channery silt loam, 15 to 25 percent slopes														
Glenelg	85	B	0-8	Channery silt loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	60-100	50-75	40-75	30-70	32-40	7-12
			8-29	Channery silt loam, silty clay loam, loam	GM, ML, SM	A-4, A-6, A-7	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			29-50	Loam, sandy loam, very channery loam	GM, ML, SM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	0-40	NP-6
GeD2—Glenelg channery silt loam, 15 to 25 percent slopes, moderately eroded														
Glenelg	85	B	0-8	Channery silt loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	60-100	50-75	40-75	30-70	32-40	7-12
			8-26	Channery silt loam, silty clay loam, loam	GM, ML, SM	A-4, A-6, A-7	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			26-60	Loam, sandy loam, channery loam	GM, ML, SM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	15-40	NP-6

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
GeD3—Glenelg channery silt loam, 15 to 25 percent slopes, severely eroded														
Glenelg	85	B	0-8	Channery silt loam	GM, ML, SM	A-2-4, A-2-6, A-4, A-6	0	0-10	60-100	50-75	40-75	30-70	32-40	7-12
			8-26	Channery silt loam, silty clay loam, loam	GM, ML, SM	A-4, A-6, A-7	0	0-10	60-100	50-100	45-100	35-95	34-46	9-15
			26-60	Loam, sandy loam, channery loam	GM, ML, SM	A-2, A-4	0	0-50	60-100	50-100	40-95	25-75	15-40	NP-6
GnC2—Glenville silt loam, 8 to 15 percent slopes, moderately eroded														
Glenville	100	C	0-10	Silt loam	ML, SM	A-4	0	0	85-100	85-100	70-95	45-80	25-35	3-10
			10-16	Silt loam, channery loam, channery silty clay loam	ML, CL, CL-ML, GM, SC	A-4, A-6	0	0-10	70-100	60-100	60-95	45-80	25-40	5-13
			16-30	Silt loam, channery loam, silty clay loam	ML, CL, CL-ML, GM, SC	A-4, A-6	0	0-10	65-100	60-100	55-95	45-80	25-40	5-13
			30-50	Silt loam, channery loam, silty clay loam	ML, CL, CL-ML, GM, SC	A-6, A-4	0	0-10	65-100	60-100	55-95	45-80	25-40	5-13
			50-70	Channery fine sandy loam, channery loam, very channery sandy loam	GC, SC, SM, CL-ML, GM, ML	A-1, A-2, A-4	0	0-20	45-90	20-75	10-75	5-65	25-35	5-10

Engineering Properties–Delaware County, Pennsylvania														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*Pct*	*Pct*					*Pct*	
Ma—Made land, gravelly materials														
Udorthents, shale and sandstone	85	B/D	0-6	Silt loam	CL, ML, SC-SM, SM	A-6, A-4	0-1	0-1	80-100	80-90	70-85	60-75	15-25	8-15
			6-60	Very channery silt loam, silt loam, very channery loam, channery silt loam	SC, GC, GM, GW-GM, SC-SM	A-1, A-2, A-2-4	0-2	0-45	25-95	20-95	10-30	5-30	15-40	NP-15
Me—Made land, schist and gneiss materials														
Udorthents, schist and gneiss	95	B	0-3	Silt loam	CL, CL-ML, ML	A-4	0	0-5	85-100	80-100	70-95	50-75	25-35	5-10
			3-40	Loam, gravelly silt loam, clay loam	ML	A-6, A-7-6	0	0-5	90-100	80-100	70-100	55-95	35-45	10-15
			40-60	Loam, gravelly silt loam, clay loam	ML	A-6, A-7-6	0	0-5	90-100	80-100	70-100	55-95	35-45	10-15
Mf—Made land, sanitary land fill														
Udorthents, sanitary landfill	98	A	0-24	Gravelly loam, gravelly silty clay loam	CL, CL-ML, ML	A-4, A-6, A-7	0	0-5	60-100	55-100	55-100	50-95	0-45	5-25
			24-70	Variable	GP	A-1	—	—	—	—	—	—	—	—
We—Wehadkee silt loam														
Wehadkee	90	D	0-9	Silt loam	CL-ML	A-4	0	0	95-100	90-100	70-100	60-90	22-35	2-12
			9-28	Silt loam	CL-ML	A-4	0	0	85-100	80-100	70-95	55-85	22-35	2-12
			28-60	Sandy clay loam, silty clay loam	CL-ML	A-4	0	0	75-100	70-100	60-90	45-60	22-30	2-10
			60-64	Stratified clay	SC-SM	A-2	0	0	50-85	45-80	45-80	15-35	15-32	NP-14

Data Source Information

Soil Survey Area: Delaware County, Pennsylvania
Survey Area Data: Version 7, Dec 14, 2013

APPENDIX U-2: UPLAND COUNTY PARK ENVIRONMENTAL SURVEY

Delaware County Park Study
Upland Park
Environmental Resource Survey

Upland Park

Upland park is located in Upland Borough on Sixth Street on an approximately 60 acre parcel. Much of the park consists of active recreational uses such as sporting fields and playgrounds. There are large open areas that are partially covered with trees but is primarily open mowed turf grass. There is a small wooded area tucked in along the northeast corner of the park. No surface waters were observed or mapped within the park boundaries. The surrounding area is primarily high density housing with the Caleb Pusey Property and Chester Creek south of the park property. The park has a relatively flat topographical relief.

An environmental survey was conducted to provide a preliminary inventory and assessment of the existing environmental features within the park to assist future planning decisions. The largest environmental resource within the park consists of the small forested area to the northeast.

The forested area is currently under utilized and not well maintained. The forest is primarily hardwood and the understory and shrub layer is primarily non-native pioneer species. This area is tucked away from the park and is not easily accessed without traveling across the park. A dump site was observed along the edge of the forest.

The open lawn areas are currently used for sporting events, parking, and/or picnicking. There are a significant number of trees scattered throughout the open lawn areas.

Recommendations:

The wooded area is not visible. No maintained trails were observed. It would be difficult to establish a safe use of this area for trail recreation. It is unlikely that a recreational use of this area would be utilized due to the location within the park. Coordination should be instigated to determine what the public desires or expects from this wooded resource.

The open meadows seems to be an appropriate use for the space and existing uses of the park. Planting native meadows does not seem practical for the same reasons. However it is possible to develop a native meadow or a fruit tree grove along the open lawn area in the south east corner along Third Street with community support.

No wetlands were found on National Wetland Inventory (NWI) mapping of the park. No wetlands were delineated or identified by the three parameter approach outlined in the 1987 United States Army Corps

of Engineer Wetland Manual and corresponding regional supplement. A detailed wetland investigation was not practical for the level of detail for this survey report and NWI mapping often does not show smaller wetland pockets. Preliminary wetland investigation criteria used for the sake of this report consisted of visual identification and rapid test of hydrophytic vegetation, landform and visible signs of hydrology. It is recommended that prior to any park improvements including land disturbance that a wetland investigation and updated Pennsylvania Natural Diversity Inventory (PNDI) inquiry be conducted to the presence of or potential habitat belonging to rare, threatened, and/or endangered species. A wetland investigation and, if necessary, wetland delineation may be required to be submitted with PADEP and NPDES permits for disturbances in wetlands and streams.

1. PROJECT INFORMATION

Project Name: **Upland Park**
Date of review: **8/16/2011 11:39:39 AM**
Project Category: **Recreation,Other**
Project Area: **90.4** acres
County: **Delaware** Township/Municipality: **Upland,Chester Twp**
Quadrangle Name: **MARCUS HOOK** ~ ZIP Code: **19015**
Decimal Degrees: **39.854180 N, -75.390286 W**
Degrees Minutes Seconds: **39° 51' 15" N, -75° 23' 25" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate no known impacts to threatened and endangered species and/or special concern species and resources within the project area. Therefore, based on the information you provided, no further coordination is required with the jurisdictional agencies. This response does not reflect potential agency concerns regarding impacts to other ecological resources, such as wetlands.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for one year** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.* is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special

concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt, a completed PNDI form and a USGS 7.5 minute quadrangle map with the project boundaries delineated on the map. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources

Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA. 17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service

Endangered Species Section
315 South Allen Street, Suite 322, State College, PA. 16801-4851
NO Faxes Please.

PA Fish and Boat Commission

Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

PA Game Commission

Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name:_____
Company/Business Name:_____
Address:_____
City, State, Zip:_____
Phone:(_____)_____Fax:(_____)_____
Email:_____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

_____ _____
applicant/project proponent signature date